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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/652,348

08/29/2003

Franklin J. Wall JR.

LUM-03-06-10

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05/18/2006

PATENT LAW GROUP LLP
2635 NORTH FIRST STREET
SUITE 223
SAN JOSE, CA 95134

EXAMINER

FARAHANI, DANA

ART UNIT

PAPER NUMBER

2891

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/652,348

Applicant(s)

WALL, FRANKLIN J.

Examiner

Dana Farahani

Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 18-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17, 23 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/29/03.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-12, 14-17, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shie et al, hereinafter Shie (US Patent 6,480,389), newly cited.

Regarding claims 1, 7-9, 16, 17, and 23, Shie discloses, fig. 1, a structure comprising:

a semiconductor light emitting device (LED) 20;

a substrate comprising a ceramic core 50 and at least one copper layer 10 overlying the core;

wherein the LED is electrically connected to the at least one copper layer and wherein a path from the at least one copper layer to the ceramic core is thermally conductive.

Shie does not expressly disclose the copper layer having a thickness of at least 4, or between 4-24 mils. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the layer having such a large thickness in order to adjust the heat radiating properties of the layer.

Regarding claim 3, although Shie does not expressly disclose the core comprises a material selected from the group of aluminum oxide/nitride and silicon nitride, it discloses that the ceramic core is a PCB aluminum based (see col. 3, line 1). Since PCB's are normally isolative and aluminum oxide/nitride are the most common form of aluminum based insulators, it

is very likely that the core is in fact aluminum oxide/nitride. Assuming, arguendo, that the ceramic core 50 is not aluminum oxide/nitride, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the core as aluminum oxide/nitride, since it is suggested in the reference that the core is aluminum based, and aluminum oxide and aluminum nitride are the most common form of aluminum based insulators.

Regarding claim 4, at least one lead 52 is connected to the substrate.

Regarding claim 5, at least one solder pad 12 is connected to the substrate.

Regarding claim 6, at least one terminated wire, any of the wires shown in the figure, is connected to the substrate.

Regarding claim 10, a second substrate, the substrate comprising layers 14 and 15b, is disposed between the LED and the first substrate.

Regarding claim 11, the second substrate comprises at least one metal bonding pad 15b and an insulating layer 14.

Regarding claim 12, the insulating layer is Alumina (see col. 3, line 4).

Regarding claim 14, a base 60 is connected to the substrate.

Regarding claim 15, a lens, the top portion of the housing 40, is disposed over the LED.

Regarding claim 24, copper layer 12 can be considered as part of the copper layer 10, and layer 51 part of the ceramic core, in which case the copper layer directly contacts the core.

3. Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shie as applied to claim 1 above, and further in view of Applicant's Admitted Prior Art (AAPA), newly cited.

Shie discloses the limitations in the claims, but does not disclose the light-emitting element has a III-nitride light-emitting layer, and that the second substrate comprises a silicon integrated circuit.

AAPA discloses that III-nitride light emitters are known and used in the art (paragraph 2) and further discloses a silicon ESD protection integrated circuit 2 is formed beneath the LED 1 (see fig. 1, and paragraph 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a III-nitride type light emitter layer, in order to emit any color of desired light (i.e. UV-red) or combinations thereof (e.g. white), and use a silicon integrated circuit between the LED and the first substrate of the Shie's structure in order to protect the chip therein from electrostatic discharge.

Product-by-Process Limitations

A comparison of the recited process with the prior art process does NOT serve to resolve the issue concerning patentability of the product. *In re Fessman*, 489 F2d 742, 180 USPQ 324 (CCPA 1974). Whether a product is patentable depends on whether it is known in the art or it is obvious, and is not governed by whether the process by which is made is patentable. *In re Klug*, 333 F2d 905, 142 USPQ 161 (CCPA 1964). In an ex parte case, product by process claims are not constructed as being limited to the product formed by the specific process recited. *In re Hirao et al.*, 535 F2d 67, 190 USPQ 15, see footnote 3 (CCPA 1976). Therefore, in claims 7 and 17, the process of bonding (or in case of claim 7, the method which is used in bonding) the copper layer to the core is given less patentable weight.

Response to Arguments

4. Applicant's arguments with respect to claims 1-17, 23 and 24 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Farahani whose telephone number is (571)272-1706. The examiner can normally be reached on M-F 9:00AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571)272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Farahani


DAVID ZARNEKE
PRIMARY EXAMINER
5/12/06